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Masaaki Oka

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EXAMINER

LEE, JOHN W

ART UNIT

PAPER NUMBER

2624

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DELIVERY MODE

07/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/780,303

Applicant(s)

OKA, MASAAKI

Examiner

John Wahnkyo Lee

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20041206 and 20070504</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. Initialed and dated copies of Applicant's IDS form 1449, Paper No. 20041206 and 20070504, are attached to the instant Office action.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 21 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 7 is drawn to functional descriptive material NOT claimed as residing on a computer readable medium. MPEP 2106.IV.B.1(a) (Functional Descriptive Material) states:

"Data structures not claimed as embodied in a computer-readable medium are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer."

"Such claimed data structures do not define any structural or functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized."

Claim 21, while defining a program, does not define a "computer-readable medium" and is thus non-statutory for that reasons. A program can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" in order to make the claim statutory.

"In contrast, a claimed computer-readable medium encoded with the data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory." - MPEP 2106.IV.B.1(a)

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 5-6, and 18-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Satoh et al (EP 1117074 A2).

Regarding claim 1, Satoh discloses an image generating system (abstract; Figs. 2, 4, 14, and 17), comprising: a database which stores first shape data which represents a three dimensional shape of a first area including at least a part of an object area (paragraphs [0035] and [0063], "virtual objects"); a camera which shoots a second area including at least a part of the object area (Fig. 2-103, Fig. 4-103, Fig. 14-103, and Fig. 17-103; paragraphs [0036]-[0037], [0046], and [0100], "actually sensed video") and an image generating apparatus which generates an image of the object area using a picture shot by the camera and the first shape data (Fig. 2-104, Fig. 4-104, Fig. 14-104, and Fig. 17-104; paragraph [0037], "AR game apparatus") , wherein said image generating apparatus includes: a data acquiring unit which acquires the first shape data from said database (Fig. 2-201, Fig. 4-201, Fig. 14-201, and Fig. 17-201; paragraph [0063], "game state manager"); a picture acquiring unit which acquires the picture from

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said camera (FIG. 8-S803; paragraphs [0036], [0046], and [0071]); a first generating unit which generates an image of the first area by setting a predetermined viewpoint and a view direction and rendering the first shape data (Fig. 2-202 and 212, Fig. 4-202 and 212, Fig. 14-202 and 212, and Fig. 17-202 and 212; paragraphs [0042], [0045], and [0048], "Objective viewpoint video generator" and "Subjective viewpoint video generator"); a second generating unit which generates an image of the second area when viewed from the viewpoint toward the view direction by using the picture (paragraphs [0044] and [0046]); and a compositing unit which composites the image of the first area with the image of the second area to generate the image of the object area (Fig. 2-203, Fig. 4-203, Fig. 14-203, and Fig. 17-203; paragraphs [0046] and [0084]; claim 1 "Objective viewpoint video composition unit").

Regarding claim 2, Satoh discloses an image generating system (abstract; Figs. 2, 4, 14, and 17) wherein: said image generating system includes a plurality of cameras located at a plurality of positions (Fig. 9; paragraphs [0096]-[0102]); said image generating apparatus further comprises a calculating unit which calculates second shape data which represents a three dimensional shape of the second area using a plurality of the pictures acquired from said plurality of cameras (paragraphs [0056]-[0058]); said second generating unit sets the viewpoint and the view direction and renders the second shape data to generate the image of the second area (paragraphs [0035], [0044] and [0046]).

Regarding claim 5, Satoh discloses an image generating system (abstract; Figs. 2, 4, 14, and 17) wherein said database stores the first shape data obtained by

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modeling an area which does not change in a short term in the object area (paragraphs [0007]-[0009], [0042]-[0043], [0045], and [0063]).

Regarding claim 6, Satoh discloses an image generating system (abstract; Figs. 2, 4, 14, and 17) wherein said database stores the first shape data obtained by modeling an area which does not change in a short term in the object area (paragraphs [0007]-[0009], [0042]-[0043], [0045], and [0063]).

Regarding claim 18, Satoh discloses an image generating apparatus (abstract; Figs. 2, 4, 14, and 17), comprising: a data acquiring unit which acquires first shape data which represents a three dimensional shape of a first area including at least one part of an object area from a database (Fig. 2-201, Fig. 4-201, Fig. 14-201, and Fig. 17-201; paragraph [0063], "game state manager") which stores the first shape data (paragraphs [0035] and [0063], "virtual objects"); a picture acquiring unit which acquires a picture of a second area including at least one part of the object area shot (Fig. 2-103, Fig. 4-103, Fig. 14-103, and Fig. 17-103; paragraphs [0036]-[0037], [0046], and [0100], "actually sensed video") by a plurality of cameras located at a plurality of positions from the cameras (Fig. 9; paragraphs [0096]-[0102]); a first generating unit which generates an image of the first area by setting a predetermined viewpoint and a view direction and rendering the first shape data (Fig. 2-202 and 212, Fig. 4-202 and 212, Fig. 14-202 and 212, and Fig. 17-202 and 212; paragraphs [0042], [0045], and [0048], "Objective viewpoint video generator" and "Subjective viewpoint video generator"); a second generating unit which generates an image of the second area when viewed from the viewpoint toward the view direction by using the picture shot (paragraphs [0044] and

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[0046]); and a compositing unit which composites the image of the first area with the image of the second area to generate the image of the object area (Fig. 2-203, Fig. 4-203, Fig. 14-203, and Fig. 17-203; paragraphs [0046] and [0084]; claim 1 "Objective viewpoint video composition unit").

Regarding claim 19, claim 19 is analogous and corresponds to claim 18. See rejection of claim 18 for further explanation.

Regarding claim 20, Satoh discloses an image generating method (abstract; Figs. 2, 4, 14, and 17), wherein when generating an image of an object area viewed from a predetermined viewpoint toward a predetermined view direction (Fig. 2-103, Fig. 4-103, Fig. 14-103, and Fig. 17-103; paragraphs [0036]-[0037], [0044], [0046], and [0100], "actually sensed video") using a plurality of pictures shot by a plurality of cameras (Fig. 9; paragraphs [0096]-[0102]); and acquired from the cameras in real time (paragraphs [0088]-[0089]), the method generating the image of the object area which represents a present state of the object area artificially by complementing the pictures with an image (Fig. 2-203, Fig. 4-203, Fig. 14-203, and Fig. 17-203; paragraphs [0046] and [0084]; claim 1 "Objective viewpoint video composition unit") generated by using three-dimensional shape data obtained by modeling at least a part of the object area (Fig. 2-201, Fig. 4-201, Fig. 14-201, and Fig. 17-201; paragraphs [0035] and [0063], "game state manager" and "virtual object").

Regarding claim 21, Satoh discloses a program executable by a computer (paragraphs [0061]-[0062]; claims 19-27). Moreover, claim 21 is analogous and corresponds to claim 18. See rejection of claim 18 for further explanation.

Regarding claim 22, Satoh discloses a computer-readable recording medium which stores a program executable by a computer (paragraphs [0061]-[0063]; claims 19-27). Moreover, claim 22 is analogous and corresponds to claim 18. See rejection of claim 18 for further explanation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (EP 1117074 A2) in view of Yonezawa et al. (US 2002/0075286).

Regarding claim 3, Satoh discloses all the previous claim limitations except the claim limitation of claim 3. However, Yonezawa discloses compositing unit generates the image of the object area by complementing an area that is not represented by the second shape data with the image of the first area generated from the first shape data (paragraphs [0046]-[0047] and [0049]-[0050]).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Yonezawa's invention in Satoh's invention to provide a more real composite image as suggested by Yonezawa (paragraph [0006]).

Regarding claim 7, Satoh further discloses an image generating system (abstract; Figs.2, 4, 14, and 17) wherein said database stores the first shape data

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obtained by modeling an area which does not change in a short term in the object area (paragraphs [0007]-[0009], [0042]-[0043], [0045], and [0063]).

8. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (EP 1117074 A2) in view of Anabuki et al. (US 6,633,304).

Regarding claim 4, Satoh discloses all the previous claim limitations except the claim limitation of claim 4. However, Anabuki discloses second generating unit renders the area which is not represented by the second shape data with a transparent color when rendering the second shape data (col.7, lines 19-25); said compositing unit generates the image of the object area by overwriting the image of the second area with the image of the first area (col. 2, lines 16-24).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Anabuki's invention in Satoh's invention to provide a mixed reality presentation apparatus and control method suggested by Anabuki (col. 2, lines 16-20).

Regarding claim 8, Satoh further discloses an image generating system (abstract; Figs.2, 4, 14, and 17) wherein said database stores the first shape data obtained by modeling an area which does not change in a short term in the object area (paragraphs [0007]-[0009], [0042]-[0043], [0045], and [0063]).

9. Claims 9-10, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (EP 1117074 A2) in view of Ikeuchi ("Modeling from Reality").

Regarding claim 9, Satoh discloses all the previous claim limitations except the claim limitation of claim 9. However, Ikeuchi teaches a database stores first color data which represents a color of the first area (section 3); said image generating apparatus further includes a lighting calculating unit which calculates a situation of a lighting in the picture shot by comparing the first color data acquired from said database with color data of the picture shot (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Ikeuchi's method in Satoh's invention to effectively use for synthesizing realistic object images as suggested by Ikeuchi (section 6).

Regarding claim 10, Ikeuchi further teaches a database stores first color data which represents a color of the first area (section 3); said image generating apparatus further includes a lighting calculating unit which calculates a situation of a lighting in the picture shot by comparing the first color data acquired from said database with color data of the picture shot (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3).

Regarding claim 12, Ikeuchi further teaches a database stores first color data which represents a color of the first area (section 3); said image generating apparatus further includes a lighting calculating unit which calculates a situation of a lighting in the picture shot by comparing the first color data acquired from said database with color data of the picture shot (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3).

Regarding claim 13, Ikeuchi further teaches a database stores first color data which represents a color of the first area (section 3); said image generating apparatus further includes a lighting calculating unit which calculates a situation of a lighting in the

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picture shot by comparing the first color data acquired from said database with color data of the picture shot (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3).

Regarding claim 14, Ikeuchi further teaches first generating unit adds an effect of lighting similar to the lighting in the picture shot to the image of the first area in consideration of the situation of the lighting (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3).

Regarding claim 15, Ikeuchi further teaches first generating unit adds a predetermined effect of lighting to the image of the first area (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3); said second generating unit adds the predetermined effect of lighting to the image of the second area, after once removing the effect of lighting from the image of the second area (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (EP 1117074 A2) in view of Yonezawa et al. (US 2002/0075286), and further in view of Ikeuchi ("Modeling from Reality").

Regarding claim 11, Satoh and Yonezawa disclose all the previous claim limitations except the claim limitation of claim 11. However, Ikeuchi teaches a database stores first color data which represents a color of the first area (section 3); said image generating apparatus further includes a lighting calculating unit which calculates a situation of a lighting in the picture shot by comparing the first color data acquired from said database with color data of the picture shot (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Yonezawa's invention and Ikeuchi's method in

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Satoh's invention to synthesizing realistic object images as suggested by Ikeuchi (page 124; section 6).

11. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (EP 1117074 A2) in view of Anabuki et al. (US 6,633,304), and further in view of Ikeuchi ("Modeling from Reality").

Regarding claim 9, Satoh and Anabuki disclose all the previous claim limitations except the claim limitation of claim 9. However, Ikeuchi teaches a database stores first color data which represents a color of the first area (section 3); said image generating apparatus further includes a lighting calculating unit which calculates a situation of a lighting in the picture shot by comparing the first color data acquired from said database with color data of the picture shot (sections 3.1, 3.2, 4, 4.1, 4.2, and 4.3).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Anabuki's invention and Ikeuchi's method in Satoh's invention to effectively use for synthesizing realistic object images as suggested by Ikeuchi (section 6).

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (EP 1117074 A2) in view of Kondo (US 6,812,924), and further in view of Sawada (US 5,844,625).

Regarding claim 16, Satoh discloses all the previous claim limitations, including

the image generating system (abstract; Figs. 2, 4, 14, and 17), a database storing a plurality of the first shape data corresponding to the object areas of a plurality of times (paragraph [0063]), and the image generating apparatus (Fig. 2-104, Fig. 4-104, Fig. 14-104, and Fig. 17-104; paragraph [0037], "AR game apparatus"), except the other claim limitations of claim 16. However, Kondo discloses a first selecting unit which selects the first shape data to be acquired by the data acquiring unit among the plurality of the first shape data stored in said database (Figs. 24 and 25; dol. 10, lines 18-26; col. 11, lines 20-29; claim 7). Sawada discloses storing the picture shot(col. 2, lines 43-49, col. 5, lines 28-37) and a second selecting unit which selects the picture shot to be acquired by the picture acquiring unit among the pictures stored in said recording apparatus (col. 5, lines 64-67; col. 6, lines 1-6).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Kondo's invention and Sawada's invention in Satoh's invention to provide a an apparatus for obtaining shape data (Kondo, col. 1, lines 48-50) and a picture processing apparatus (Sawada, col. 2, lines 20-21).

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (EP 1117074 A2) in view of Kondo (US 6,812,924), and further in view of Sawada (US 5,844,625) and Yonezawa et al. (US 2002/0075286).

Regarding claim 17, Satoh, Kondo, and Sawada disclose all the previous claim limitations except the claim limitation of claim 17. However, Yonezawa discloses second selecting unit selects the first shape data corresponding to the time when the

picture selected by said first selecting unit was shot (paragraphs [0098]-[0099], "synchronization").

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Kondo's invention, Sawada's invention, and Yonezawa's invention in Satoh's invention to provide a more real composite image as suggested by Yonezawa (paragraph [0006]).

Conclusion

14. No claims are allowed.
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Wahnkyo Lee whose telephone number is (571) 272-9554. The examiner can normally be reached on Monday - Friday (Alt.) 7:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business

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Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



JINGGE WU
SUPERVISORY PATENT EXAMINER

John W. Lee
(AU 2624)